The Soybean Digest

Official Publication

OF

THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 1 · NUMBER 8 · JUNE · 1941

American Soybean Association's
Annual Convention at Des Moines, Iowa
Sept. 12-13
Write Hotel Fort Des Moines for reservations

THE *Soybean Digest*

VOL. I — JUNE · 1941 — NO. 8

IN THIS ISSUE

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Market Summary

SOYBEANS

Chicago Futures	June 13	Week Ago	Month Ago
July	$1.39½	$1.32½	$1.33½
October	1.30½	1.23⅝	1.20½
December	1.30⅞	1.23¾	.....

SOYBEAN OIL

Tanks, midwest mills	9c (new) 9½-⅝c	8⅞-9c	9c

SOYBEAN OIL MEAL

Memphis, Tenn., Futures (Basis Decatur)			
July	$25.50 bid	$25.20 @ 25.80	$23.60 @ 24.00
October	24.65 @ 24.80	24.05	23.70 @ 23.85
December	24.75	24.20 @ 24.40	23.75

(Above quotations from Roesling, Monroe and Company, Sterne and Son Company, and Zimmerman Alderson Carr Company.)

Soybeans hit a new high for the year on the Chicago futures market May 21 when the May contract was quoted at $1.43⅞ for the day's high. Cash soybeans were quoted at $1.42 to $1.42¼ on the same day at Chicago. This peak receded somewhat, however, and prices fluctuated largely within the range of $1.30 to $1.35 until the end of the week closing June 14 when the announcement that the U.S.D.A. would support soybean prices at approximately $1, in an effort to encourage production, caused a mild flurry and sent prices back near the $1.40 mark.

Oil prices remained steady during the past month, while soybean oil meal prices advanced from $1.00 to $1.50. Some plants have been closed down because of a shortage of beans, while others are operating on a part-time schedule.

Soybean seeding is expected to exceed the March intentions report in many areas, and seeding conditions were favorable.

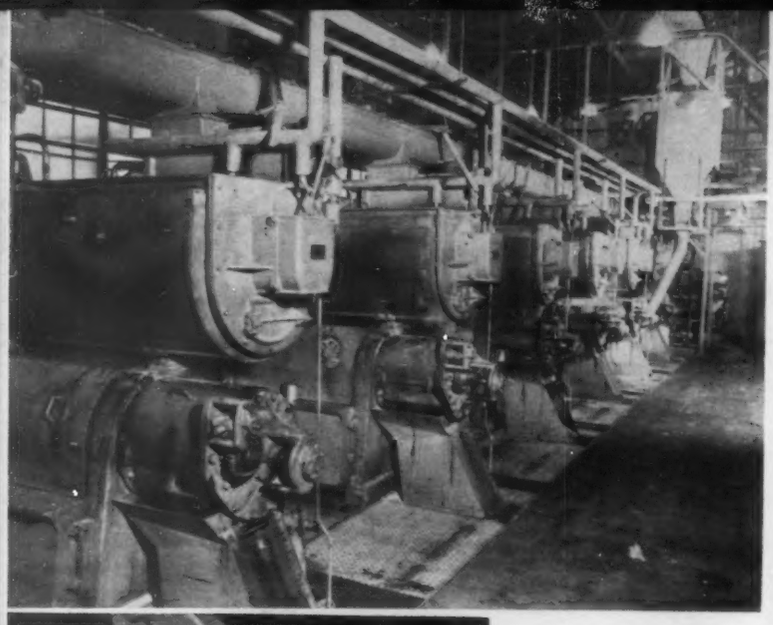
U.S.D.A. Urges Soybean Increase

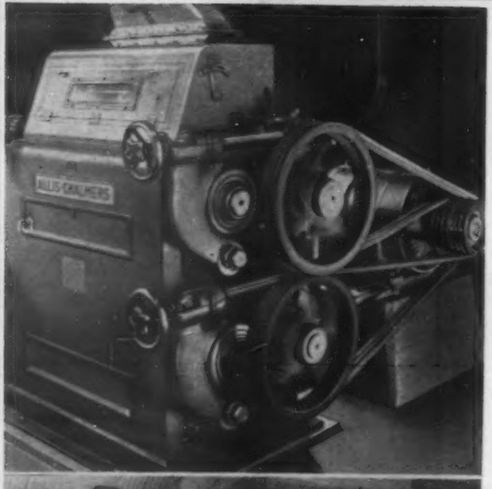
To insure ample supplies of vegetable oils for defense as well as normal requirements, the United States Department of Agriculture June 13 announced changes in the agricultural conservation program to encourage increased production of soybeans for oil, with prices supported at approximately $1 should any unforeseen decline occur in present price levels.

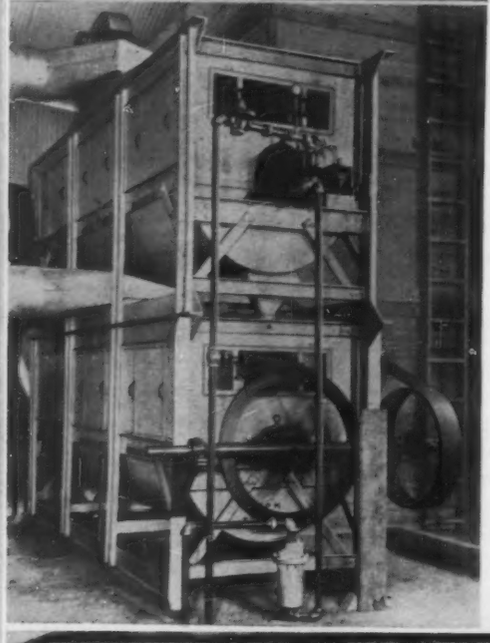
Oil production will be encouraged by two revisions in the AAA program which will enable farmers to harvest for beans many soybean acres originally intended for hay. One revision states that farmers may increase their 1941 bean harvest over the 1940 bean harvest without incurring deductions in the payments on the farm, and the other provides that in those states having minimum acreage requirements of soil-conserving or erosion-resisting crops on each farm, soybeans harvested for seed will be classed as soil-conserving or erosion-resisting. Soybeans harvested for hay were formerly classed as soil-conserving, but soybeans harvested for seed were classed as soil-depleting.

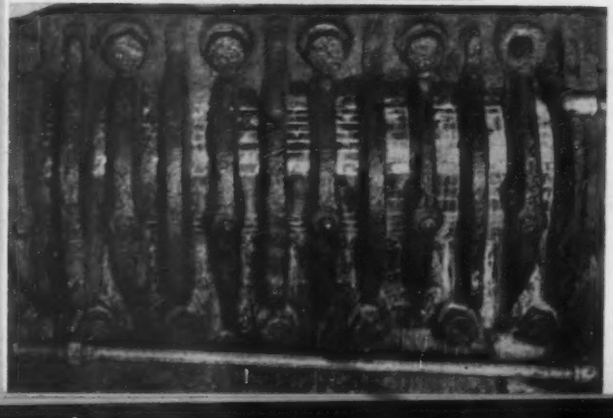
In special cases where the 1940 acreage is not considered representative for the farm the county AAA committees will establish an acreage as a basis for farming operations under the new provisions. This will make it possible for some farmers to expand production who might otherwise be unable to do so, and to prevent unbalanced operations on other farms due to excessive plantings.

The flow of supplies from normal sources of fats and oils has been interrupted by war conditions, department officials pointed out, and some increase in domestic production may be necessary to provide a normal volume for consumption without a material reduction in stocks.









Technological Aspects In Processing Soybeans

1. The Continuous-Pressing Method

By W. H. GOSS, Chemical Engineer
U. S. Regional Soybean Industrial Products Laboratory*

IN ORDER to consider a few of the technologic problems involved in the processing of soybeans, it will be necessary to describe the various methods used for removing oil from the beans and to consider the different kinds of machinery employed. By processing, we mean the operation of producing crude soybean oil and soybean oil meal from soybeans. The oil is subsequently refined and consumed principally in the edible oil and, to a lesser extent, in the drying oil industries, while the meal is utilized as a protein concentrate for mixed feeds. The much-publicized industrial uses of soybean protein, while offering a vast potential outlet, at present account for a relatively small percentage of the soybean oil meal consumption.

The path of the beans through a typical processing plant leads first to the elevator which may range in size from a bin containing a few thousand bushels to a terminal elevator holding millions of bushels. Soybean storage in itself is not a difficult problem, and commercial practice differs very little from that of storing grains. It is necessary to remove weed seeds and foreign material and to run the beans into the bins at a moisture content of about 13 percent or lower to avoid heating. It is possible, but not always considered safe, to store soybeans for short periods or in small batches at higher moisture percentages. When it is necessary to dry soybeans before storage, direct heat driers of the baffle type, identical with those used on grains, are considered quite satisfactory.

Not a great deal is known concerning the effects of length and conditions of storage upon the yield and quality of the products resulting from processing. Distinct changes do occur throughout the storage year, and the proper evaluation of these changes, together with their effects upon the resulting products, is one of the industry's present problems. Soybean storage has reached a point of perfection far beyond that of most other oleaginous materials, but the possibilities for further improvements furnish plenty of food for thought and are not being overlooked.

From storage, the path of soybeans through the mill depends upon the process employed. That most widely used in this country is known as continuous pressing, and next in importance is continuous solvent extraction. Although hydraulic presses and, to a small extent, batch solvent extractors are also operated, the present-day trend is definitely away from methods requiring large amounts of hand labor. We shall therefore confine these remarks to the first two, that is, the continuous methods.

In continuous pressing mills, cleaned beans from the storage bins are run to cracking mills which consist of two or three pairs of corrugated rolls which reduce the size to an average of roughly 10 mesh. This treatment is followed by drying to a moisture content of 2 to 5 percent in rotary steam driers. The hot, dry material is then conveyed to the presses.

Continuous presses used on soybeans in this country are the Anderson Expeller and the French Screw Press. Structural features of the Super-Duo, an expeller which is widely used on soybeans, is shown in the accompanying illustrations. The granular material, hot from the driers, enters the uppermost of three tempering troughs and is slowly conveyed through them, in succession, being

At top, interior of soybean mill using French Screw Presses (photo courtesy of the French Oil Mill Machinery Company); No. 2 from top, a roller mill for cracking soybeans prior to pressing (photo courtesy of Allis Chalmers Manufacturing Company); No. 3 from top, a rotary steam drier used on cracked soybeans (photo courtesy of Allis Chalmers Manufacturing Company); at left, close-up of the cage of a screw press in action. Oil may be seen oozing from between the longitudinal parallel bars (Soybean Digest photo).

* A cooperative organization participated in by the Bureaus of Agricultural Chemistry and Engineering and Plant Industry of the U. S. Department of Agriculture, and the Agricultural Experiment Stations of the North Central States of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

ca Problems in Soybeans

held at a high temperature by means of steam jackets. The individual particles are thus permitted to equalize the unsteady state of moisture and heat distribution existing immediately after the drying operation and thus reach the press itself without serious gradients of temperature and moisture content in the single small grains.

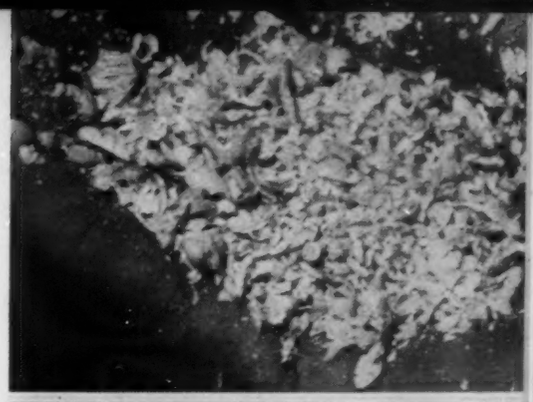
The pressing is done by a worm revolving inside a steel cage, the operation being, to some extent, analogous to that of a household meat grinder. The cylindrical cage, or drainage barrel, is composed of longitudinal, parallel steel bars, closely spaced, between which the oil flows when squeezed out under the influence of pressure developed within the barrel. The pressure may be as high as 10 tons per square inch and is produced partly because of the irregular shape of the worm shaft and partly because of flow restriction by means of an adjustable orifice at the end where the pressed cake is discharged. The flow of oil from the beans under pressure is facilitated by increased temperatures due to friction developed by the action of the screw.

The cake emerges as irregularly shaped, hard fragments which have been toasted to a brown color by heat developed during the operation. Large masses of cake, if stored hot, will rapidly heat still further to the ignition point, and the cake must therefore be cooled to a safe temperature by adding water and blowing air through it. The final step in preparation of soybean oil meal consists in grinding the cake in a hammer mill.

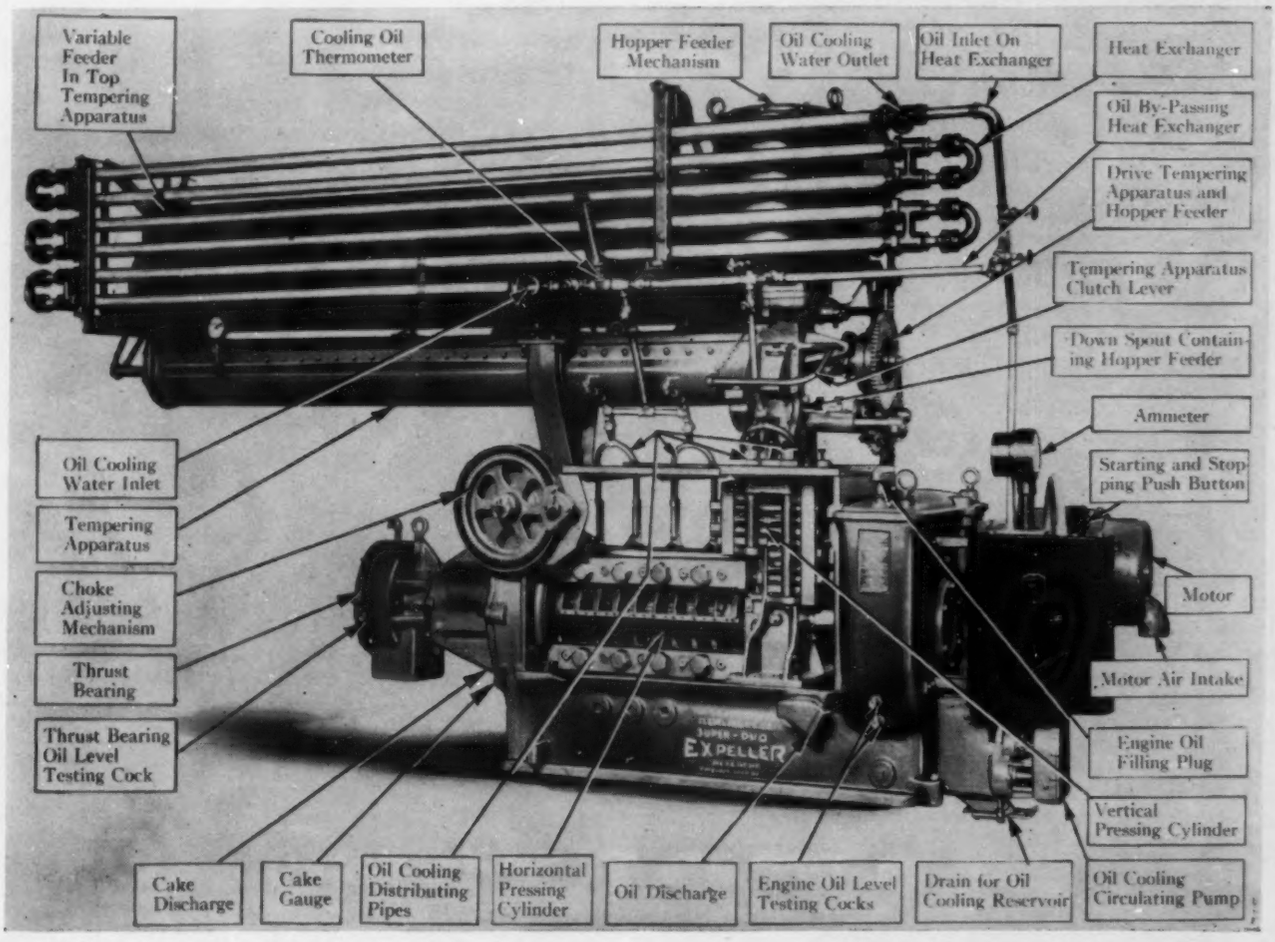
Oil from the press is run over a shaking or revolving screen or similar straining device to remove small meal particles, or foots, which are returned to the feed. The strained oil is filtered, generally through a filter press, and marketed as crude soybean oil.

The French Screw Press is also widely used on soybeans. Its principle of operation is much the same as that of the Super-Duo, but it differs considerably in details of construction. Operating results are approximately the same with either machine, the capacity being about 750 bushels per day. A bushel of beans containing, for instance, 20 percent of oil yields 8 to 10 pounds of crude oil and close to 50 pounds of meal containing about 4.5 percent oil and 40 to 45 percent protein.

Next month — the solvent process.



At top, cracked beans ready to enter the drier, thence to the expeller; middle, oil coming through the filter press before going into tanks for shipment as crude soybean oil (Soybean Digest photos). Below, the Super-Duo Expeller (photo courtesy of V. D. Anderson Company).



Heavier Consumption of Drying Oils Anticipated

CONSUMPTION of drying oils in the paint industry probably will be considerably larger in 1941 than in 1940, says the May issue of *The Fats and Oils Situation*. Industrial production is now at a record level and building activity has reached the highest peak in more than 10 years, and both are expected to continue at high levels at least through 1941.

Supplies of tung and perilla oils, however, are likely to be smaller than they were a year ago; hence, the increase in use of drying oils probably will come largely in linseed oil. Increased utilization of dehydrated castor oil, soybean oil and fish oils also is indicated.

During the first quarter of 1941, the total apparent disappearance of tung oil was 19 million pounds, 14 percent more than in the first quarter of 1940. Fourteen million pounds of this total, however, were derived from stocks, which on March 31 were reported at only 43 million pounds. With much smaller imports of tung oil in prospect and with comparatively little being produced domestically, the rate of consumption for tung oil established in the first quarter cannot be maintained throughout the year unless stocks are to be almost entirely depleted.

Imports and consumption of perilla and oiticica oils in the first quarter this year were at very low levels. Total disappearance of 156 million pounds of linseed oil, however, was 32 percent greater than a year earlier. The United States now has sufficient flaxseed on hand to meet crushing requirements until the new domestic crop becomes available, and a large supply of flaxseed is reported available in South America.

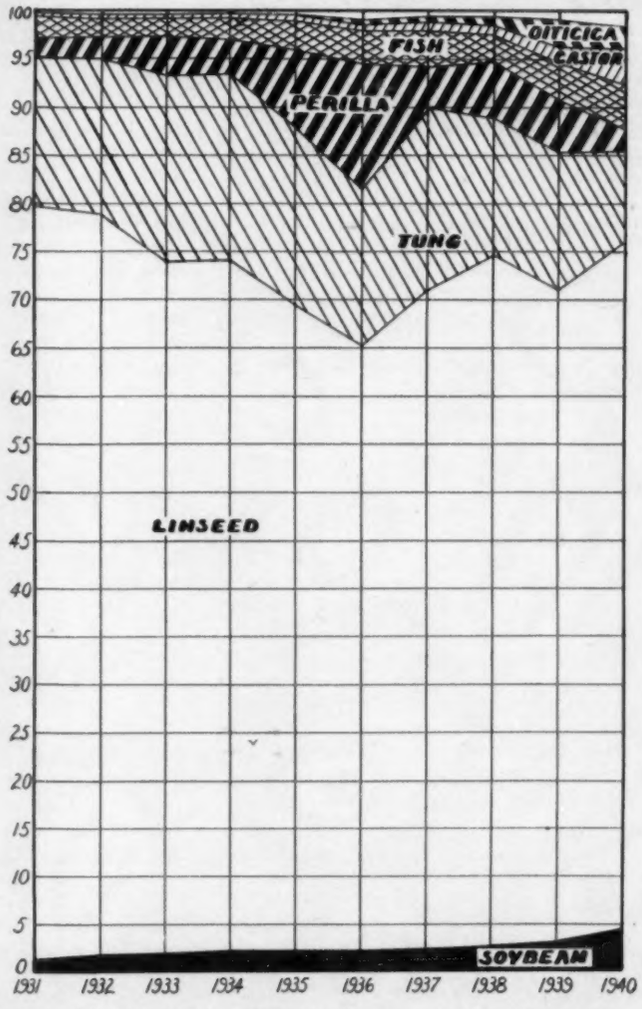
Production of flaxseed in Argentina and Uruguay in 1940-41 is officially estimated at about 64 million bushels compared with 45 million bushels a year earlier. Because of the loss of important European markets and the large crop in this country in 1940, only about 10 percent of the 1941 exportable surplus of flaxseed in South America has been exported to date.

United States imports of flaxseed during the first 3 months of 1941 totaled nearly 4 million bushels. Imports probably will not be maintained at such high levels during the coming months, depending largely on the availability of ocean shipping space, the rate of crushing activity and size of the domestic crop in 1941.

Thirty mills were crushing flaxseed in the United States during the first quarter of 1941, according to a preliminary report of the Bureau of the Census. Flaxseed crushed totaled 286,377 tons compared with 220,981 tons for the same period in 1940. The output of linseed oil for the comparative quarters was 196,281,000 and 150,197,000 pounds respectively.

Stocks of linseed oil at the mills at the end of March were also higher, amounting to 150,434,000 pounds in 1941, as compared with 135,868,000 pounds for the corresponding quarter of 1940.

PERCENTAGE CONTRIBUTION OF LEADING DRYING OILS TO TOTAL OIL USED IN PAINT AND VARNISH INDUSTRY, 1931-40



Soybean oil has been used in paints and varnishes in small quantities for many years, but the increase in such uses have been very slow in relation to the increase in its production. Soybean oil accounted for only 4.5 percent of the total oils used in paint and varnish in 1940, despite curtailed use of tung and perilla oils due to difficulties of shipping. Dehydrated castor oil, crushed from South American beans, has enjoyed a relatively greater increase in use as a substitute for tung and perilla oils than has soybean oil. Wider use of soybean oil in farm paints, and quicker-drying properties imparted by new processes, may induce a greater increase in the use of soybean oil in paints and varnishes than heretofore experienced, however.

Germany Gets Soybeans

Germany appears to be obtaining from the Soviet Union the bulk of the soybeans for which she contracted in 1940 in Bessarabia. Larger shipments in 1941-42 of oilseeds or oils from the Far East via the Trans-Siberian railroad also are expected, says *Foreign Crops and Markets* of May 26. Food supplies in most countries of continental Europe are still sufficient for the maintenance of current rations. Food production for the populations of continental Europe is not expected to be larger in 1941-42 than in 1940-41, when withdrawals from reserve stocks were necessary to maintain rationed consumption. Germany's food supply, however, is not likely to become critical in the near future as it did in 1914-18.

B. & O. Makes New Soybean Exhibits Available

A soybean exhibit, "Where Do Soybeans Go?", prepared by the Baltimore and Ohio railroad, is now available for showing upon request, according to R. L. Winklepleck, agricultural agent of the railroad at Springfield, Ill. It is the exhibit used on the Soybean Special train, which toured Ohio, Indiana and Illinois last spring. It is approximately 7 feet long, 2½ feet deep and 7 feet high.

Another exhibit, 5 feet long and 2 feet deep, is being prepared dealing primarily with the many food products manufactured from soybeans. A sample product of each manufacturer, obtained from the foods display of the women's car of the Soybean Special, will be displayed on lighted shelves in the middle of the exhibit, while the wings will display colored photographs relating to the soybean industry. This exhibit will be completed and available for display in August.

Soybean Grade Changes to be Effective Sept. 1

AN AMENDMENT which constitutes a complete revision of the official grain standards for soybeans will become effective Sept. 1, the United States Department of Agriculture announced June 3. The principal changes involve moisture content and split soybeans as grading factors and the adoption of a dockage system. The maximum moisture content allowed in grades 1, 2 and 3 were lowered, while the quantity of splits permitted in grades 1 and 2 was increased. A dockage system was established whereby most of the determinations as to the grades are made after the removal of the dockage.

In addition to liberalizing the number of splits allowable from 1 to 10 percent in grade No. 1 and from 10 to 15 percent in grade No. 2, the new standards promulgate the use of an 8/64-inch sieve instead of a 10/64-inch sieve as formerly. The smaller perforations of the sieve thus hold back more of the splits and small soybeans that formerly fell through the sieve into the dockage material.

The maximum percentage of moisture is reduced from 15 to 13 percent in grade No. 1, from 15 to 14 percent in grade No. 2, and from 16.5 to 16 percent in grade No. 3. No. 4 grade moisture limit remains at 18 percent. The percent of damaged kernels allowable in No. 1 grade was increased from 1.5 to 3. The table gives the grade requirements as they will become effective Sept. 1.

The new standards are designed to make the No. 1 grade a practical one. A recent study by the Agricultural Marketing Service revealed that only 2 percent of the soybeans were grading No. 1, while 35 percent graded No. 2 and 45 percent, No. 3. A series of conferences were held through the main soybean production areas early in May to discuss changes being proposed.

The Chicago Board of Trade has specified that from June 7 to Aug. 30, inclusive, all contracts for delivery in October of soybeans under the new grades must be specified as "new." If no designation is given at the time of the execution of the order it shall be understood that the orders are executed as "regular" orders, calling for delivery of grades meeting specifications in effect prior to Sept. 1. At the close of business Aug. 30, only "regular" contracts for delivery of soybeans in October shall be named "old" contracts and shall be traded in for liquidation only.

—sbd—

GRADE REQUIREMENTS FOR YELLOW, GREEN, BROWN, BLACK AND MIXED SOYBEANS (Effective Sept. 1, 1941)

Grade No.	Minimum test weight per bushel	Maximum limits of — Moisture	Splits	Damaged kernels (soybeans and other grains)	Foreign material other than dockage
	Pounds	Percent	Percent	Percent	Percent
1*	56	13	10	2	1
2*	54	14	15	3	2
3	52	16	20	5	3
4**	49	18	30	8	5
Sample grade	Sample grade shall include soybeans of any of the classes Yellow Soybeans, Green Soybeans, Brown Soybeans, Black Soybeans or Mixed Soybeans, which do not come within the requirements of any of the grades from No. 1 to No. 4, inclusive; or which contain stones and/or cinders; or which are musty or sour or heating or hot; or which have any commercially objectionable foreign odor; or which are otherwise of distinctly low quality.				

* The soybeans in grade No. 1 of each of the classes Yellow Soybeans and Green Soybeans may contain not more than 2 percent, and the soybeans in grade No. 2 of each of these classes may contain not more than 3 percent of Black, Brown or bicolored soybeans, singly or combined.

** Soybeans that are badly weathered or badly stained shall not be graded higher than No. 4.

Yield Contests Get Under Way

SOYBEAN yield contests are now in progress in each of the three leading soybean producing states, Illinois, Iowa and Indiana. It marks the first year for such contests in Illinois and Iowa, and the second year in Indiana.

Entries for the Illinois contest, for which rules were completed and announcement made early in May, closed June 1. Yield is to be determined on at least 10 acres in one continuous rectangular plot, of which the width shall be at least one-fourth the length.

Harvesting must be done before Nov. 1, and awards will be made on the basis of 40 percent of the score for yield, 25 percent for economy of production, 20 percent for oil content of the beans and 15 percent for quality of the soybeans. Awards will be announced at the annual banquet of the Illinois Crop Improvement Association to be held during Farm and Home Week, Feb. 2-6, 1942. Accurate records of production are stressed in this contest in order to make the contest a fruitful source of information.

Entries for the Iowa contest will not close until Sept. 1. The Iowa Corn and Small Grain Growers' Association, sponsors of the contest, will work through local commercial clubs and farm bureaus in promoting entries. Where at least three entries are made through one organization, medals will be awarded as local prizes, and state prizes will be cash prizes of $50, $40, $30, $20 and $10.

At least 5 acres in one rectangular plot must be contained in any field entered, and an entry fee of $1 will be charged. Harvesting will be done by a local committee of three appointed by the sponsors with the approval of the Corn and Small Grain Growers' Association. A 15-pound sample of the harvested seed must be sent with the harvesting committee's report within 3 days after harvesting, and not later than Dec. 1. To be eligible for prizes the soybeans must be at least No. 2 grade.

The prizes will be awarded on the basis of yield, but a report must be submitted telling the variety, rate and manner of seeding, spacing of rows, fertilization, previous crop, cultivation and seedbed preparation data, and how the crop was harvested.

Soybean Oil Exports Drop 27 Percent

Exports of soybean oil from the United States during the first 6 months of the 1940-41 marketing season (October to September) were 27 percent below the same period the previous year but exceeded those for the entire 1938-1939 season, according to the Office of Foreign Agricultural Relations.

Shipments to Finland increased, but not sufficiently to offset the decrease to Switzerland and the complete loss of other European markets. Approximately one-third of the total exports went to Latin American countries.

Exports of soybeans during the first 6 months of the current season were only 82,000 bushels, compared with nearly 11 million bushels during the same period of 1939-40. No improvement is expected during the coming months as the larger trade was principally with European countries.

UNITED STATES SOYBEAN OIL EXPORTS

Country	October - March 1939-40	1940-41
	(Thousands of lbs.)	
Cuba	2,630	2,306
Finland	2,249	3,204
Canada	861	283
French West Indies	86	861
Switzerland	2,317	534
Curacao (Netherlands West Indies)	476	258
Chile	112	110
Costa Rica	330	160
Colombia	103	141
Iceland	157	121
Ecuador	106	103
Panama	205	73
Union of South Africa	113	54
Others	1,997	357
Total	11,742	8,565

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GEO. M. STRAYER, Editor — J. W. TOWNSEND, Managing Editor

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TWO more milestones in the progress of the soybean crop in America were erected this spring with the initiation of soybean yield contests in the two leading soybean producing states of the nation, Illinois and Iowa. With the contest begun last year in Indiana, the three leading soybean states are now in a position to obtain more factual information on soybean production methods than ever before.

MR. and Mrs. Soybean Layman have often expressed an interest in just what takes place inside those huge plants by the "silos" from which issue that nut-like aroma of roasting soybeans. Our feature article this month therefore deals with the processing of soybeans by the continuous pressing or "expeller" method. This is the most common method in use in this country today, and W. H. Goss, chemical engineer at the United States Regional Soybean Industrial Products Laboratory, explains it in detail on pages 2 and 3 of this issue. Next month he will treat the variations of the solvent process, next in importance in processing methods, and later issues will deal with problems peculiar to the solvent process.

LAST month, as you probably remember, we promised you a story on soybean diseases. We are sorry that this article had to be postponed until fall because of the lack of readily available information. The plant pathologist we had contacted to write the story did not feel he could do justice to the subject without more time for collecting such data as are available.

Incidentally, this brings out a regrettable fact, that nowhere in the United States, to the best of our knowledge, is there a plant pathologist who devotes even the major part of his time to the study of soybean diseases. Diseases there are, but study of them has been limited largely to incidental cases brought to light when a farmer has submitted a sickly or dead soybean plant to his state experiment station for diagnosis.

It would be real economy for the U.S.D.A. and the state experiment stations to make definite allotment of funds for the specific study of soybean diseases. Why wait until the loss amounts to thousands of dollars before acting? A stitch in time saves nine, and often some embarrassment, too.

RECENT announcement by the U.S.D.A. that increased soybean production is to be encouraged to insure vegetable oil stocks adequate for the increased needs of the national defense program should bring home to every soybean grower the importance of his crop to his country. Fats and oils are one of the most vital needs of any wartime economy — Germany lost in 1918 largely because of an inadequate supply — we must not let it happen here. Those beans you planted for hay, harvest them for seed. Beans planted now can make the hay you need, but might not mature in time for seed . . . cultivate and care fastiduously for every row . . . and plan to attend the annual convention of your association Sept. 12 and 13 in Des Moines, Iowa.

ON SEVERAL occasions we referred to the McClave bean, and to the promotional efforts being put behind its sale. A bit of racketeering has crept into the sales of seed. There has apparently been nothing much behind it except some misconceptions and misrepresentation.

Now we learn from one of the processing companies who purportedly made oil tests for the promoters that their data has been used by these promotors in a very unfair manner. Recent tests on beans produced under similar weather and soil conditions show the McClave running 2.35% less oil than Illini grown under identical conditions. At today's prices that amounts to 13.5 cents per bushel difference in value. Other tests have gone as high as 3% difference in oil — or 16.2 cents per bushel.

Again we say we have no axe to grind on McClaves. Our warning to you is that the processors are watching them — and next Fall they will be worth less on the market than the standard varieties. If you have planted them better be prepared to be disappointed. They have been marked. The oil content determines the market value.

Fulmer Bill Asks New Import Duties

New and intense interest is being shown in the pending Fulmer Bill (H.R. 4313) which provides for greater protection to the American producers of vegetable fats and oils.

Over a widespread district, particularly in the Corn Belt, farmers have begun urging their congressmen to get behind this measure with a view to obtaining early enactment.

Officers of the American Soybean Association have been gathering information from members throughout the leading eight producing states and assembling these views for use in collaboration with other agricultural associations having large stakes in the proposed legislation, long sought as a means of broadening the market for homegrown products.

The Fulmer Bill (H.R. 4313) provides primarily the following:

1. Coconut oil from the Philippines: Increase processing tax from 3 cents per pound to 6 cents per pound. Other sources left unchanged at 2-cent duty plus 5-cent processing tax.
2. Other vegetable oils (generally) increased to 6 cents per pound. (Some today are free, others have 2½, 3 and 4-cent duty or processing tax.)
3. The duties on oilbearing seed adjusted to correspond to the proposed duties or processing taxes on oil plus the present duty on the resulting meal.

There are other minor adjustments, all of which tend to place a full 6-cent per pound protection against foreign fats and oils that are highly competitive both directly and indirectly with soybean oil and other domestic fats and oils.

Every soybean grower should contact his local Representative at Washington and urge first, that he insist that H.R. 4313 be given prompt consideration by the Agricultural Committee, and second. that he give all help and assistance to Representative Fulmer to secure the early passage of the bill.

—sbd—

Seeks New Crops For Surplus Acres

A bill "To provide for the discovery, introduction, breeding and testing of agricultural crops for utilization in industry and manufacturing and for replacement of surplus agricultural crops through cooperation of the United States Department of Agriculture and the several State agricultural experiment stations" was introduced April 30 into the House of Representatives by Representative August H. Andresen of Minnesota. It has been referred to the Committee on Agriculture.

The bill (H.R. 4591) would appropriate $2,000,000 each fiscal year, to begin in 1942, to carry on such research, of which $800,000 would be used by the United States Department of Agriculture, and $1,200,000 for use by the state agricultural experiment stations. One-half of the appropriations to the Department of Agriculture is to be used to establish and maintain not to exceed 12 regional plant introduction and testing centers in such different agricultural regions as the secretary of agriculture designates.

"Surpluses have long been the first cause of farm income difficulties, and this bill is a direct attack upon surpluses at their source," said Andresen in announcing the bill. "This is a field of study not covered by any present legislation. The history of the soybean crop alone indicates its importance. This new crop, whose acreage multiplied six times in the last 15 years, has consistently brought more satisfactory prices to farmers than any other major crop. The bill proposes special emphasis on crops like the soybean that will be valuable for industrial uses rather than upon crops to overcrowd further the limited food market.

"The proposed research lies in a wholly different field from that of the four regional research laboratories, and is intended to supplement rather than to duplicate their work. The laboratories are limited to study of new uses for existing surpluses, while the new bill seeks to find new crops to supplant surpluses."

Soybeans . . . and People

Vitamin-Enriches All Lines of Margarine

ADDITION of vitamins A and D to all its margarines, including the lower-priced brands, was announced in May by the Standard Margarine Company of Indianapolis, Ind. Higher-priced margarines have been vitamin-enriched for several years, but this marks the first instance that vitamins have been added by any company to its lower-priced brands.

The action was taken following the advocation of the nation's nutritionists that sound, healthy bodies and alert minds are a prerequisite in national defense, according to Robert Spears, vice president of the company.

A. A. Robinson, director of research of the Standard Margarine Company and former president of the American Oil Chemists Society, says, "The English Government early recognized the value of vitamins in margarine. Shortly after war was declared, the government made it mandatory that vitamins be added to all margarines. Vitamin A has become famous as the antidote for 'night blindness' in London blackouts, and in the diets of RAF pilots."

Vitamin A promotes growth, assists in maintaining a high level of resistance to respiratory infections and helps to maintain a high accuracy of vision. Vitamin D is the "sunshine" vitamin necessary in the formation of sound bones and teeth.

"Margarine," according to Mr. Robinson, "was deliberately discovered to meet an urgent national need in a time of distress. It first came into existence in Europe at a time when there was an acute shortage of edible fats. Its discovery was the direct result of an offer of a prize by Napoleon III, during the Franco-Prussian war in 1870, for the preparation of a 'palatable, appetizing, nutritious and economical fatty food product'."

Soybean oil has come to be one of the most important ingredients of margarine in the last decade. In 1940 margarine manufacturers used 87,106,000 pounds of soybean oil. Margarine is second only to shortening as an outlet for soybean oil.

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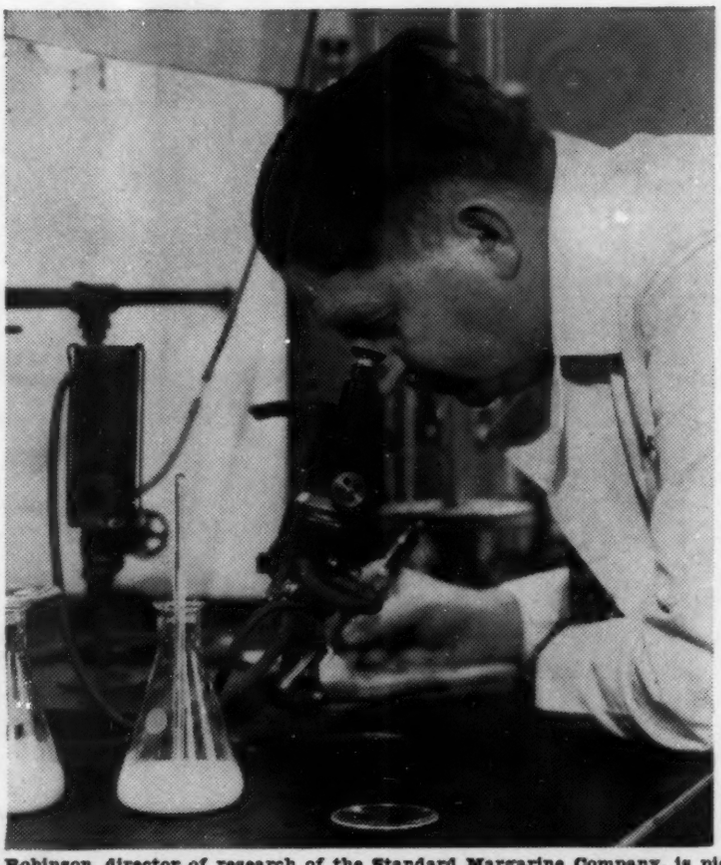
In a recent poll of margarine manufacturers by C. H. Janssen, secretary-manager of the National Margarine Institute, 98.3 percent of the total tonnage of the margarine industry indicated its willingness to enrich all margarine produced for home use with vitamin A. Not less than 9,000 units per pound as approved in the pending proposed Federal Standard of Identity would be the amount added.

The results of this poll were submitted to the National Nutrition Conference For Defense in Washington, D. C., May 26-28, by J. S. Abbott, director of research of the National Margarine Institute. Margarine is an important food item in millions of homes, largely in the lower income class of our population, and such action would promptly add several hundred million pounds of essential food to the protective dietary classification, he said. Total production of margarine for the fiscal year ending June 30, 1941, is estimated to be 350 million pounds.



A. A. Robinson, director of research of the Standard Margarine Company, is pictured above at work in his laboratory. Margarine was invented in 1870 in France to meet the heavy war-time pressure on the country's fatty food resources, says Robinson. The Standard Margarine Company recently announced vitamin A and D enrichment of all its margarine brands, in keeping with national defense needs.

Butter and Margarine Consumption Increases

Consumption of both margarine and creamery butter showed a substantial increase in the first quarter of 1941 compared to the same period of 1940. In the three months January-March of 1941, consumption of margarine totaled 96,032,000 pounds and butter consumption was 449,200,000 pounds. Comparable figures for 1940 are 84,715,000 pounds margarine and 441,400,000 pounds butter.

Grocers Ask Repeal of Occupations Tax

A brief proposing the repeal of federal "occupations" tax on margarine paid by retail grocers handling the product, was approved by the National Nutrition Conference for Defense. The brief was submitted to the conference, meeting May 26-28 in Washington, D. C., by the National Association of Retail Grocers.

Under present federal regulations, retail dealers handling colored margarine must pay $48 annually, and dealers handling uncolored margarine, $6, as an "occupation" tax.

The brief quoted the report of the National Resources Committee that 41 percent of the American people cannot afford the more expensive table fats, if at all, in sufficient quantities to provide an adequate diet, and that the tax which operated to reduce the number of retail stores selling margarine thereby deprived a large percentage of the American people of the opportunity of purchasing a cheap, nutritious food which is essential to an adequate minimum diet.

Grows First Tung Nuts

Paraguay is experimenting with the production of tung nuts and last year the first quantity of oil produced, 1,837 kilos (slightly over 2 tons), was exported to Argentina. Data as to area planted, number of trees, production costs and yield are not available. Tung seeds were planted in the Encarnacion region of Paraguay some years ago, and further plantings were made from seedlings.

Experiments made with tung nuts grown in Paraguay have given the following results in oil yield: from the epicarp, 20 percent; from the hull, 40 percent; from the kernel, 40 percent, using hydraulic presses. Nuts in the hull produced 28 percent oil, while shelled nuts produced 38 percent.

The Ministry of Agriculture, Commerce and Industry is said to be planning to acquire the entire crop and plant the seeds in experimental stations in order to supply seedlings for transplanting to agriculturists. The Ministry hopes such a program will tend to produce uniform cultivation of this crop and will ultimately produce a quantity of tung nuts which can be economically utilized in industry.

A series of three grading schools for Iowa grain dealers will be held at Omaha, Neb., Sioux City, Ia., and Cedar Rapids, Ia., according to Duke Swanson, secretary of the Western Grain and Feed Association. Special attention will be given to the new soybean grades. Conducted by the Association in cooperation with the Agricultural Marketing Service, the first school will be held June 26 at Omaha.

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The soybean elevator of the Plymouth Processing Company, Fort Dodge, Iowa, was destroyed by fire the night of May 16. The elevator had a capacity of 40,000 bushels, but was only partly filled.

Hawaiians Eat Lots of Soybeans, But Can't Grow Satisfactory Home Crops

ALTHOUGH Hawaii imports large quantities of dried soybeans from the Orient for preparation of a variety of food products, the crop is grown only to a limited extent in the Hawaiian islands, according to J. C. Ripperton, agronomist at the University of Hawaii Agricultural Experiment Station, Honolulu.

Such soybeans as are grown satisfy small local demands for edible varieties. These varieties are entirely unclassified, each grower having his own particular strain. The varieties are undoubtedly very badly mixed and the acreage planted is too small to warrant very much attention to the crop, says Ripperton.

"It would be a great boon to the Territory if soybeans could be grown here since the bean is used in considerable quantities for human food and because of our need of a high quality protein concentrate for dairy feed and beef fattening. Our experiments in the past, however, have proven that it is a highly uncertain crop. We have tried all of the standard varieties as well as numerous lots from Japan, the United States Department of Agriculture, etc. Of these, Biloxi, Otootan and Mammoth Yellow appear to be the best adapted. In the same field during the same season in successive years, we have secured as little as 5 bushels and as much as 50 bushels per acre of beans, the lower figure being the more common, however," writes Ripperton.

"In Hawaii the amount of arable land which is available at the lower levels where soybeans apparently do the best is rather restricted since such lands are taken up by sugar cane or pineapples, the gross return of which is in the neighborhood of $500 per acre. Thus even though we found a variety of soybeans which was better adapted, the possibilities of producing the soybean in competition with big scale production elsewhere are rather small," he notes.

"Perennial legumes such as pigeon peas (*Cajanus cajan*) and forage shrubs such as Koa haole (*Leucaena glauca*) which produce large crops are grown extensively. The pigeon pea is, of course, an important food crop of the tropics also. The issue is not closed with us, however, and we may take up a further study of soybeans at some time in the future," Ripperton states.

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Freight rate advances on coconut oil, copra and copra meal from the Philippines to the United States, effective May 10, were rescinded at request of the Maritime Commission.

New York Expands Seed Production

Although soybeans in New York are grown chiefly for forage purposes, particularly with corn for silage, the growing of soybeans for seed as a supplementary protein feed for farm animals is greatly on the increase, says R. G. Wiggans, of the department of plant breeding at the Cornell University Agricultural Experiment Station, Ithaca, N. Y.

Breeding work at Cornell is confined to grain production, since corn belt types serve well for forage purposes. Row and plot tests with recently introduced strains, individual strains from plant selections and selection from hybrids total more than 3,000 rows at the Cornell Station, Wiggans reports.

All the work at Cornell is with extremely early varieties and strains, because they are the only types that will mature seed there.

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Modern Milling and Processing Trends, published by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., devoted the major portion of the May issue to the "Biography of a Miracle Bean." The profusely illustrated article told of the soybean's introduction into America, its growing importance since the first World War, and the uses to which soybean products are being put.

Economists Forecast Higher Oil Prices In 1941-42, Even if Production Increases

Prices of oilseeds likely will average higher in the 1941-42 marketing season than in the current season, even if output should be increased, says the Bureau of Agricultural Economics. The growing strength in domestic demand, plus the probability that imports will be reduced, will more than offset the effect on prices of any increase in domestic production that may take place this year. Normally, 10 to 15 percent of our total fat supply is imported.

The growing scarcity of ocean shipping space already has sharply affected vegetable oil prices. The general price level for all groups in April was 24 percent higher than the relatively low prices of April, 1940, and was slightly higher than the 1910-14 average, although it was still considerably below the 1924-29 average. Prices were the highest in April since 1937, a year in which domestic demand was strong and supplies of lard and greases were unusually small.

Despite rising prices, total consumption of primary fats and oils was 16 percent greater in the first quarter this year than last, another factor in the higher prices of fats and oils. Factory production of fats and oils as a whole was only slightly larger in the first quarter this year than last. Net imports of oils and oilseeds in terms of crude oil totaled 406 million pounds during the first quarter of 1941 compared with 491 million pounds during the first quarter of 1940. Exports, including re-exports of items imported free of tax or duty, totaled 133 million pounds in the first quarter this year compared with 146 million pounds a year earlier. Thus with a decrease of 85 million pounds in imports and 13 million pounds in exports, net imports were 72 million pounds smaller in the January-March period this year than last, a reduction of 21 percent.

The most pronounced reductions from the preceding year occurred in imports of coconut oil and copra (down 26 percent), and flaxseed (down 17 percent). These reductions were partly offset by increased imports of palm oil (up 60 percent) and castor beans (up 67 percent).

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More Cottonseed Meal Going into Fertilizer

Considerably more cottonseed meal is expected to be used as fertilizer on cotton farms in the South in 1941 than in 1940, says the Agricultural Marketing Service. Cotton farmers used only 75,000 tons in 1940, the lowest year of the last decade, and 1941 use as fertilizer is estimated at 111,000 tons. The 1930-39 average was 180,000 tons, and the most used in any one year was 465,000 tons in 1932.

The quantity of cottonseed meal utilized for fertilizer from year to year apparently depends upon the price of cottonseed meal relative to the prices of other livestock feed and of other nitrogenous fertilizers.

INDEX NUMBERS OF WHOLESALE PRICES OF FATS AND OILS

	April 1939	April 1940	1941 Feb.	1941 March	1941 April
1910-14 equal 100:					
Eight domestic fats and oils	75	84	83	93	104
1924-29 equal 100:					
Eight domestic fats and oils	53	59	63	66	74
All fats and oils	56	64	68	72	79
Grouped by origin:					
Animal fats	50	59	64	67	73
Marine animal oils	71	89	93	99	105
Vegetable oils, domestic	66	71	65	71	84
Vegetable oils, foreign	77	89	96	103	114
Grouped by use:					
Food fats (other than butter and lard)	66	67	70	78	93
Butter	53	65	66	68	78
Soap fats	66	65	66	75	90
Drying oils	79	102	95	99	105

United States Castor Bean Imports Increase

Imports of castor beans into the United States were 67 percent above the previous year at the close of the January-March quarter of 1941. Brazil has been the principal source of United States importations of castor beans, although large supplies were brought in from British India in 1940. Use of castor oil has been increasing in the drying oil industries in the United States since curtailment of tung and perilla oil imports.

Exporters at Bahia, Brazil, report a steady market during the first quarter of this year, but it would have been better had there been sufficient cargo space for shipments to the United States, says the Office of Foreign Agricultural Relations of the United States Department of Agriculture. Freight rates rose from $12 to $15 per ton on the first of April.

CASTOR BEAN IMPORTS INTO UNITED STATES

Year	Thousands of Pounds
1938	114,073
1939	162,611
1940	237,789
Jan. - March	
1940	63,580
1941	106,374

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Argentine Sunflower, Peanut Acreages Drop

Argentina has sown 1,225,617 acres to sunflowers this season, according to the first official estimate of the Argentine Ministry of Agriculture. This is slightly below last year's figure, due to the delay in harvesting the small-grain crop in some zones and to excessive rains and floods in others, causing difficulties at the time of sowing.

The 1940-41 area planted to peanuts was estimated at 183,325 acres compared with 243,394 reported at the same time last year and the final estimate of 220,166 acres. The reduction in acreage is the result of low prices, particularly in the Province of Cordoba where more than 50 percent of the crop is grown.

United States Oil Stocks Decline

BOTH production and consumption of leading fats and oils in the United States was substantially higher in the quarter ending March 31, according to the Bureau of Census of the United States Department of Commerce. The net result was a decline in stocks on hand as of March 31, compared with stocks on hand on the same date a year ago.

Total stocks of fats and oils as of March 31 was 1,591,089,000 pounds, slightly more than the 1,532,126,000 pounds on hand Dec. 31, 1940, but smaller than the 1,625,813,000 pounds on hand March 31, 1940. Stocks of soybean oil were estimated at 59,133,000 pounds of crude and 29,139,000 pounds refined, as compared with 62,135,000 pounds crude and 30,446,000 pounds refined on Dec. 31, 1940, and 54,166,000 pounds crude and 44,260,000 pounds refined on hand March 31, 1940.

Production of soybean oil for the quarter ending March 31 was 151,705,000 pounds crude and 114,210,000 pounds refined, compared with 154,346,000 pounds crude and 112,901,000 pounds refined during the same period of 1940. For the 6 months ending March 31, 307,899,000 pounds of crude and 206,383,000 pounds of refined soybean oil were produced, compared with 310,593,000 pounds crude and 199,276,000 pounds refined during the same period of the previous year.

Most phenomenal increase in oil production in the 6 months ending March 31 was registered by peanut oil, which jumped from 16,034,000 pounds crude and 9,983,000 pounds refined in the two quarters ending March 31, 1940, to 126,149,000 pounds crude and 94,270,000 pounds refined in the two quarters ending March 31, 1941.

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Albers Brothers Lose Customs Court Issue

Soybean oil meal cannot be mixed with small amounts of other feeds and imported into the United States under the lower tariff rates prevailing on mixed feeds, according to a May 6 decision of the United States Customs Court, third division.

Albers Brothers Milling Company imported soybean oil meal with a mixture of 5 percent of corn meal and then sought to have this fall within the provision of mixed feeds, which carry a lower tariff rate. The company entered suit when the collector of customs at Los Angeles refused such permission.

Judge Evans, one of the judges presiding in the case known as C.D. 490, Albers Brothers Milling Company vs. United States, pointed out that the collector had assessed the duty on the merchandise at the rate of three-tenths of a cent per pound under provision of paragraph 730 of the Tariff Act of 1930 for soybean oil cake meal, and his decision goes on to explain that simply adding 5 percent of corn meal in no way altered the situation.

Witnesses in the present case admitted that 5 percent of corn meal would not destroy the use of soybean oil cake meal, and that its principal use would be as a component rather than a straight feed; that for all practical purposes the admixture could be used in about the same way as soybean oil cake meal. Judgment was rendered consequently against the plaintiff, Albers Brothers Milling Company.

This decision stops any suspected gap in the wall providing a $6 per ton duty on soybean oil meal, and it is thought unlikely that further attempts will be made to bring in such admixtures.

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Seedburo Equipment Company, formerly operated under the name of Seed Trade Reporting Bureau, has just issued a 1941 catalog of new grain testing and grading equipment, germinators and other elevator equipment. The catalog is available upon request at the Seedburo Equipment Company, 223 W. Jackson Boulevard, Chicago, Ill. Orders should be placed early this season because of the difficulty resulting from the national defense program of obtaining materials beyond present stocks.

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